

What we claim is:

1. A catheterless, piercing introducer assembly suitable for the introduction and sutureless juncture of a prepared communication channel to the interior space of an anatomic body part within a living subject, said introducer comprising:

a perforator instrument comprised of

- (i) at least one elongated supporting shaft of predetermined overall dimensions and axial configuration,
- (ii) a handle attached at one end to said supporting shaft; and
- (iii) a perforating headpiece integrally joined to the other end of said supporting shaft, said perforating headpiece comprising a perforating tip, a penetrating body, and a base aspect; and

communication channel controlling means disposed adjacent to said perforating headpiece on said supporting shaft of said perforator instrument.

2. A catheterless, piercing introducer assembly suitable for the introduction and sutureless juncture of a prepared communication channel to the interior space of an anatomic body part within a living subject, said introducer assembly comprising:

a perforator instrument comprised of

- (i) at least one elongated supporting shaft of predetermined overall dimensions and axial configuration
- (ii) a handle attached at one end to said supporting shaft; and

(iii) a perforating headpiece integrally joined to the other end of said supporting shaft, said perforating headpiece comprising a perforating tip, a penetrating body, and a base aspect;

communication channel controlling means disposed adjacent to said perforating headpiece on said supporting shaft of said perforator instrument;

a volumetric shaft having two open ends and at least one sidewall of determinable dimensions, said sheath being

(1) sized at one open end for on-demand placement adjacent to and aligned closure with said perforating headpiece of said perforator instrument,

(2) substantially annular in configuration over its axial length, and

(3) adapted for protective positioning around and volumetric spatial envelopment of at least a portion of said supporting shaft extending from said perforating headpiece of said perforator instrument, said sheath providing a protective covering for said enveloped spatial volume then surrounding said supporting shaft; and

position holding means attachable to and detachable from said volumetric sheath and said supporting shaft of said perforator instrument for holding said volumetric sheath and the enveloped spatial volume at a set position around said supporting shaft of said perforator instrument.

3. A catheterless, piercing introducer assembly suitable for the introduction and sutureless juncture of a prepared communication channel to the interior space of an anatomic body part within a living subject, said introducer assembly comprising:

a perforator instrument comprised of

- (i) at least one elongated supporting shaft of predetermined overall dimensions and axial configuration,
- (ii) a handle attached at one end to said supporting shaft,
- (iii) a perforating headpiece integrally joined to the other end of said supporting shaft, said perforating headpiece comprising a perforating tip, a penetrating body, and a base aspect, and

communication channel controlling means disposed adjacent to said perforating headpiece on said supporting shaft of said perforator instrument;

a volumetric sheath having two open ends and at least one sidewall of determinable dimensions, said sheath being

- (1) sized at one open end for on-demand placement adjacent to and aligned closure with said perforating headpiece of said perforator instrument,
- (2) substantially annular in configuration over its axial length, and
- (3) adapted for protective positioning around and volumetric spatial envelopment of at least a portion of said supporting shaft extending from said perforating headpiece of said perforator instrument, said sheath providing a protective covering for said enveloped spatial volume then surrounding said supporting shaft;

position holding means attachable to and detachable from said volumetric sheath and said supporting shaft of said perforator instrument for holding said volumetric sheath and the enveloped spatial volume at a set position around said supporting shaft of said perforator instrument; and

a prepared communication channel comprising

 a linking connector including at least

 a first portion of determined dimensions and configuration which is deformable on-demand, said first portion of said linking connector being suitable for passage through an aperture and deformation within the interior space of an anatomic body part whereby said deformation serves to secure said communication channel to the interior of the anatomic body part and places said secured communication channel in fluid flow communication with the interior space of the anatomic body part, and

 a second portion of determined dimensions and configuration which is permanently joined to the sidewall of a tubular conduit such that said joining retains and secures the tubular conduit for fluid flow communication; and

 a tubular conduit of fixed dimensions and configuration having two open ends and at least one internal lumen, said tubular conduit being permanently joined at one open end to said linking connector.

4. The introducer assembly as recited in claim 1, 2 or 3 wherein said supporting shaft is hollow over at least a portion of its length.

5. The introducer assembly as recited in claim 1, 2 or 3 wherein said supporting shaft of said perforating assembly is comprised of multiple, co-axially arranged, sliding shaft segments.

6. The introducer assembly as recited in claim 1, 2, or 3 wherein said communication channel comprises an expandable and collapsible stopper member mounted upon said supporting shaft.
7. The introducer assembly as recited in claim 1, 2, or 3 wherein said communication channel controlling means comprises an inflatable and deflatable on-demand balloon appliance disposed adjacent to said perforating headpiece.
8. The introducer assembly as recited in claim 7 further comprising a luer fitting in communication with said balloon appliance on said perforator instrument.
9. The introducer assembly as recited in claim 2 or 3 wherein said volumetric sheath is divided into a plurality of tangs at one open end.
10. The introducer assembly as recited in claim 1, 2 or 3 further comprising an internal lumen within said perforator instrument which extends through said perforating headpiece and at least a portion of said supporting shaft.
11. The introducer assembly as recited in claim 1, 2 or 3 wherein said perforating headpiece further comprises at least one grooved recess for aligned closure with said sized open end of said volumetric sheath.

12. The introducer assembly as recited in claim 1, 2 or 3 wherein said perforating headpiece further comprises a substantially cone-shaped element disposed upon said base aspect.
13. The introducer assembly as recited in claim 2 or 3 wherein said volumetric sheath is formed as a substantially inflexible shell-like protective covering.
14. The introducer assembly as recited in claim 2 or 3 wherein said volumetric sheath is formed as a flexible fabric-like protective covering.
15. The introducer assembly as recited in claim 2 or 3 wherein said volumetric sheath further comprises a flange exteriorly mounted on the sheath sidewall at one open end.
16. The introducer assembly as recited in claim 3 wherein said linking connector of said communication channel is formed of a shape-memory alloy.
17. The introducer assembly as recited in claim 3 wherein said linking connector is a wire meshwork.
18. The introducer assembly as recited in claim 3 wherein said linking connector of said communication channel is in substantially cylindrical form.

19. The introducer assembly as recited in claim 3 wherein said linking connector of said communication channel is configured in T-shaped form.
20. The introducer assembly as recited in claim 3 wherein said linking connector of said communication channel is configured in L-shaped form.
21. The introducer assembly as recited in claim 3 wherein said linking connector of said communication channel is configured in H-shaped form.
22. The introducer assembly as recited in claim 3 wherein said communication channel further comprises a vascular bypass graft segment for a blood vessel.
23. The introducer assembly as recited in claim 3 wherein said communication channel further comprises an access duct for a hollow organ.
24. The introducer assembly as recited in claim 3 wherein said communication channel further comprises a tubular conduit formed of naturally occurring matter.
25. The introducer assembly as recited in claim 3 wherein said communication channel further comprises a tubular conduit formed of a synthetic material.

26. A perforator instrument suitable for the introduction and sutureless juncture of a prepared communication channel to the interior space of an anatomic body part within a living subject, said introducer perforator instrument comprising:

- (i) at least one elongated supporting shaft of predetermined overall dimensions and axial configuration,
- (ii) a handle attached at one end to said supporting shaft; and
- (iii) a perforating headpiece integrally joined to the other end of said supporting shaft, said perforating headpiece comprising a perforating tip, a penetrating body, and a base aspect.

27. A volumetric sheath suitable for use within a catheterless, piercing introducer assembly for the introduction and sutureless juncture of a prepared connecting conduit apparatus to the interior space of an anatomic body part within a living subject, said volumetric sheath comprising:

a shell covering having two open ends and at least one sidewall of determinable dimensions, said shell covering being

- (1) sized at one open end for on-demand placement adjacent to and aligned closure with an introducer instrument;
- (2) substantially annular in configuration over its axial length; and

(3) adapted for protective positioning around and volumetric spatial envelopment of at least a portion of a perforator instrument, wherein said volumetric sheath provides a protective covering for said enveloped spatial volume of the perforator instrument.

28. A method for introduction and sutureless juncture of a prepared communicating channel to the interior space of an anatomic body part within a living subject, said method comprising the steps of:

obtaining an introducer assembly comprised of a perforator instrument including

- (i) at least one elongated supporting shaft of predetermined overall dimensions and axial configuration;
- (ii) a controlling handle attached at one end to said supporting shaft; and
- (iii) a perforating headpiece integrally joined to the other end of said supporting shaft, said perforating headpiece comprising a perforating tip, a penetrating body, and a base aspect; and

communication channel controlling means disposed adjacent to said perforating headpiece on said supporting shaft;

preparing a communicating channel comprising

a linking connector including at least

a first portion of determined dimensions and configuration which is permanently deformable on-demand, said first portion of said linking connector being suitable for passage through an aperture and deformation within the interior space of an

anatomic body part whereby said deformation serves to secure said communicating channel to the interior of the anatomic body part and places said secured communicating channel in fluid flow communication with the interior space of the anatomic body part, and

a second portion of determined dimensions and configuration which is permanently joined to the sidewall of a tubular conduit such that said joining retains and secures the tubular conduit for fluid flow communication; and

a tubular conduit of fixed dimensions and configuration having two open ends and at least one internal lumen, said tubular conduit being permanently joined at one open end to said linking connector;

positioning said prepared communicating channel around said supporting shaft of said perforator;

introducing said positioned communicating channel using said introducer assembly to the interior space of an anatomic body part within a living subject such that said first portion of said linking connector of said positioned communicating channel becomes deformed and secures said joined tubular conduit to the interior space of the anatomic body part for fluid flow communication.

29. A method for introduction and sutureless juncture of a prepared communicating channel to the interior space of an anatomic body part within a living subject, said method comprising the steps of:

obtaining an introducer assembly comprised of
a perforator instrument including

(i) at least one elongated supporting shaft of predetermined overall dimensions and axial configuration;

(ii) a controlling handle attached at one end to said supporting shaft; and

(iii) a perforating headpiece integrally joined to the other end of said supporting shaft, said perforating headpiece comprising a perforating tip, a penetrating body, and a base aspect;

a volumetric sheath having two open ends and at least one sidewall of determinable dimensions, said sheath being

(1) sized at one open end for on-demand placement adjacent to and aligned closure with said perforating headpiece of said perforator instrument,

(2) substantially annular in configuration over its axial length, and

(3) adapted for protective positioning around and volumetric spatial envelopment of at least a portion of said supporting shaft extending from said perforating headpiece of said perforator instrument, said sheath providing a protective covering for said enveloped spatial volume then surrounding said supporting shaft;

position holding means attachable to and detachable from said volumetric sheath and said supporting shaft of said perforator instrument for holding said volumetric sheath and the enveloped spatial volume at a set position around said supporting shaft of said perforator instrument; and

a prepared communicating channel comprising

a linking connector including at least

a first portion of determined dimensions and configuration which is deformable on-demand, said first portion of said linking connector being suitable for passage through an aperture and deformation within the interior space of an anatomic body part whereby said deformation serves to secure said communication channel to the interior of the anatomic body part and places said secured communication channel in fluid flow communication with the interior space of the anatomic body part, and

a second portion of determined dimensions and configuration which is permanently joined to the sidewall of a tubular conduit such that said joining retains and secures the tubular conduit for fluid flow communication; and

a tubular conduit of fixed dimensions and configuration having two open ends and at least one internal lumen, said tubular conduit being permanently joined at one open end to said linking connector;

positioning said prepared communicating channel around said supporting shaft of said perforator instrument such that said volumetric sheath envelops and protects said positioned communicating channel; and

introducing said positioned communicating channel using said introducer assembly to the interior space of an anatomic body part within a living subject such that said portion of said linking connector of said positioned communicating channel becomes deformed and secures said joined tubular conduit to the interior space of the anatomic body part for fluid flow communication.